depends upon its constitution, it also depends on its context, including its incorporation within systems at yet higher levels of organization. Mechanistic reductionism neither denies the importance of context or of higher levels of organization nor appeals exclusively to the components of a mechanism in explaining what the mechanism does. The appeal to components in fact serves a very restricted purpose of explaining how, in a given context, the mechanism is able to generate a particular phenomenon.

Before explicating further what mechanistic reduction involves, I need to clarify the notion of level. The notion of level is widespread in both philosophical and scientific discussions (see Churchland & Sejnowski, 1992) and it is often assumed that levels cut across all of nature so that there are levels of subatomic particles, atoms, molecules, and so forth. Extending this to the living world, there are levels of cellular organelles, cells, tissues, organs, organisms, societies, etc. There are problems in fitting such a conception of levels together with the scientific practice of explaining phenomena because often the crucial operations in nature cross these levels – electrons interact with molecules, ions with membranes, and single-celled organisms with organisms containing multiple organs. Accordingly, it seems wise to abandon the attempt to demarcate levels that transect nature; rather, I restrict the identification of levels to local contexts in which mechanistic explanations are offered for particular phenomena.

The notion of level enters into discussions of mechanisms in virtue of the fact that a mechanistic explanation decomposes a mechanism into its component parts and operations. Thus, an investigator begins with a phenomenon – for example, the phenomenon of organisms taking in oxygen and releasing carbon dioxide and water. In the attempt to explain this phenomenon the investigator decomposes the structure (the organism's body) into component parts, decomposes its function (respiration) into component operations, and determines how they are organized and orchestrated to produce the phenomenon. With respect to this phenomenon, the operative parts of the mechanism – the lungs, blood, tissues, etc. – constitute entities at a lower level of organization than the respiring organism. Another investigator may be interested in how tissues perform their role in this mechanism and decompose them into cells and then, within cells, into different organelles involved in cellular respiration. These components are then at a lower level than those identified in the first decomposition. In principle this process can continue indefinitely, but in practice it stops after two or three rounds of decomposition within a given research area or line of investigation.

The fact that components are contained within mechanisms ensures that components are of a smaller size than the mechanism itself, but, as the